

XXXIX. MOLLUSCA, III:

CYCLOPHORIDAE (*In part*).

By LT.-COLONEL H. H. GODWIN-AUSTEN, F.R.S.

(Plates xxxviii-xl).

I now continue the descriptions of species recently collected in the Abor Hills by Mr. Kemp, commenced in this Journal in March, 1914.

The list of interesting new species has been much increased, for during the cold weather of 1913-14 Lt. G. F. T. Oakes, R.E. has again been conducting survey operations in the Tsanspu Valley, and has added largely to the collection of land-shells. He reached a point on the Great River about Lat. $29^{\circ}15'$ and Long. $95^{\circ}15'$; and I have here to thank him for finding time to add to our knowledge of the molluscan fauna of this portion of the Eastern Himalayan Range.

In the Helicidae I submit the descriptions of the seven species of *Plectophylis* that have come to hand, a most interesting set in many respects and all new. Two species were found by Mr. Stanley Kemp, the rest by Lt. G. F. T. Oakes, R.E. These I have entrusted to our best authority on the group, Mr. G. K. Gude, well known by his past work on the genus in "Science Gossip", 1898-99. The remainder of this second contribution I devote to the Prosobranchia or operculated land-shells; the collection contains a most interesting series. It is quite apparent we have as yet only a foretaste of what lies hidden in the depths of the valleys and on the forest-clad ridges and peaks many thousand feet above them, and what a harvest awaits the man knowing how to look for and how to deal with the material that would come to hand. I envy that man who may have the good fortune to go there.

LIST OF GENERA IN THE COLLECTION.

PROSOBRANCHIA.

Fam. CYCLOPHORIDÆ.

Sub-fam. CYCLOPHORINÆ.

Cyclophorus.

Myxostoma.

Pterocyclos.

Spiraculum.

Raphaulus.

Lagocheilus.

Sub-fam. *ALYCEINAE.*

Alycaeus.

Dioryx.

Cycloryx.

Sub-fam. *DIPLOMMATININAE.*

Diplommatina.

Sub-fam. *POMATIASINAE.*

Pomatias.

***Cyclophorus aborensis*, n. sp.**

(Pl. xxxviii, figs 1, 1a, 1b, 1c).

Locality: Rotung, 2000 ft., near Egar stream (S. W. Kemp); Kalek and Renging, 2000 ft. (Oakes).

Shell globosely turbinate, openly umbilicated, solid. Sculpture, carinate spiral, lirae wide apart, 5 conspicuous, the last peripheral, with much finer intermediate liration, not distinctly seen in old specimens. Colour (specimen from Renging) a rich ruddy brown over most of the surface, beneath pale ochraceous, a few splashings of same colour next the suture; in the type and in most old shells much bleaching takes place. Spire fairly high, conic, apex fine. Suture impressed.

Whorls 5, rather rapidly increasing, rounded.

Aperture circular, suboblique.

Peristome white, solid, continuous, very slightly reflected. Columellar margin sub-vertically curving.

Size: major diam. 5.60; alt. axis 24.0; alt. aperture 28.0 mm.

Type No. $\frac{6010}{1}$ (figs 1b-1c) in *Ind. Mus*; No. $\frac{6009}{1}$ I.M.

Mr. Oakes sent specimens from Kalek No. 3048 B.M. and Renging No. 3051 B.M. (figs. 1, 1a), and from Rami Lambang two specimens of a dwarf variety only 33 mm. in major diameter No. 3049 B.M.

***Cyclophorus (Glossostylus) bapuensis*, n. sp.**

(Pl. xxxviii, figs. 2, 2a, 2b, 2c).

Locality: Abor Hills, vicinity of Bapu, 4-i-13 (Oakes).

The description of this species follows that of *sidiensis* in many particulars, but it is not nearly so keeled. It has a distinct peripheral band. The umbilicus is more open and not so con-

cealed. The spire is lower, sides less flat, and first 3 whorls much smaller. Suture more impressed. Whorls, aperture and peristome the same.

Size: major diam. 33·0; alt. axis 16·0 mm.

Type No. 3108 *Brit. Mus.*

***Cyclophorus (Glossostylus) sidiensis*, n. sp.**

(Pl. xxxviii, figs. 3, 3*a*, 3*b*, 3*c*).

Locality: On Sidi River, Abor Hills (*I. H. Burkill*).

Shell conoidly turbinata, sharply keeled, umbilicus narrow and much concealed by the peristome. Sculpture, 3 distinct spiral lirae above the keel, distant with finer liration intermediate, under-side lirae fine and close together. Colour madder brown. Splashing and spotting near the suture, giving a beautiful mottled pattern. Spire high, conical, sides flat, apex pointed. Suture moderately impressed. Whorls 5, side flatly convex. Aperture circular, suboblique. Peristome white, not much thickened, reflected and expanded. Columellar margin curving vertically.

No. 6002. Size: major diam. 25·0; alt. axis 14·0 mm.

No. 6001 Rotung (*Kemp*). Bleached, older, major diam. 30·0; alt. axis 14·5 mm.

Type No. 6002 *Ind. Mus.*

Mr. Oakes also found one specimen of this species (3095 B.M.) in the Tsanspu Valley.

The Sidi River is in the outer hills north of the Trigonommetrical Station "Nari" (Siwalik) 2490.

***Cyclophorus (Glossostylus) koboensis*, n. sp.**

(Pl. xxxviii, figs. 4, 4*a*, 4*b*, 4*c*, 4*d*).

Locality: Abor Hills, Kobo, on right bank of Tsanspu or Brahmaputra (*Kemp*).

Shell turbinata, keeled, umbilicus open, not concealed by the peristome. Sculpture carinate, as described, splashes and zig-zags of darker tint, giving a mottled appearance. Colour madder brown, with a distinct dark brown band below the keel, ochraceous white beneath. Spire conic, depressed, apex very fine. Suture impressed. Whorls nearly 6. Aperture circular. Peristome double, inner lip continuous, together thick and reflected. Columellar margin vertically rounded. Operculum flat, multi-spiral, the whorls about 6, defined by a raised thread-like spiral.

Type No. 6015 (fig. 4) *Ind. Mus.* Size: major diam. 30·0; alt. axis 12·0 mm.; Rotung (*Kemp*) No. 6019-20 *Ind. Mus.*

No. 3579 B.M. (figs. 4*a*, 4*b*, 4*c*, 4*d*), Rotung (*Oakes*). Size: major diam. 32·5; alt. axis 12·25 mm.

No. 3117 B.M. Yamne Valley and 3045 B.M. Ponging.

No. 3581 B.M., between N. $28^{\circ} 15'$ — $29^{\circ} 15'$ L. $94^{\circ} 50'$ — $95^{\circ} 10'$, is not so solid a shell, smoother and higher in the spire. It comes very close to this species. Major diam. 33.0; alt. axis 15 mm.

***Spiraculum oakesi*, n. sp.**

(Pl. xxxix, figs. 3, 3a).

Locality: Abor Hills, 4-i-13 (*Oakes*).

Shell depressedly discoid, widely umbilicated. Sculpture close, fine transverse lines of growth in the epidermis, no spiral ribbing. Colour: ground, grey white, crossed by regular bands of brown, zigzag below, merging into a narrow dark peripheral band, from which zigzag lines are given off on the basal side. Spire scarcely raised above the last whorl. Suture well impressed, the sutural tube very long, 7 mm., narrow, set obliquely backward, nearly reaching to the apical whorl. Whorls 5, regularly increasing. Aperture circular. Peristome continuous, thickened, reflected at the upper inner angle, expanded forward from above and below, horizontally upon the median line of the penultimate whorl forming a narrow slit. Columellar margin rounded. Operculum multispiral, slightly concave, smooth at centre, edges of the outer whorls distinct and slightly raised.

Operculum multispiral, edges of suture slightly raised, concave in centre.

Size: major diam. 26.0; alt. axis 5.5 mm.

Five specimens of this beautiful species came to hand; it does not recall any species as yet found in Assam or Burma.

Type No. 3081 *Brit. Mus.*

Two specimens to Indian Museum.

***Spiraculum kempi*, n. sp.**

(Pl. xxxix, figs. 4, 4a and 5, 5a).

Locality: Abor Hills, 4-i-13 (*Oakes*).

Shell flatly discoid, widely umbilicated. Sculpture close, epidermal lines of transverse growth both above and below, conspicuous close spiral lirae with every 2nd or 3rd somewhat stronger—in the type 2nd much more conspicuous on the central line of the last whorl, producing an angulate upper surface. Colour rich umber brown, very indistinct transverse colouring, and a broad peripheral band. Spire very low, only just raised above the last whorl. Suture deeply impressed; the sutural tube is 9 mm. behind the peristome, extremely short, and does not appear to grow longer, it is of small diameter. Whorls 5, rounded on periphery. Aperture circular. Peristome white, thickened, double, reflected, the outer lip above forming a low ridge behind the expanded inner lip, thus forming the short open descending wing. Columellar margin rounded. Operculum roundly convex, the whorl in double filaments distantly raised, close and smooth at centre.

Size: major diam. 26.5; alt. axis 7 mm. (Largest 30.0 Ponging).

This is very close to the next species *Sp. planum* found by Mr. Kemp, but which in a few minor characters differs too much to be considered the same; unfortunately there are only two very old bleached specimens of it.

Type No. 3105 (figs. 4, 4a) *Brit. Mus.*; No. 3047 B.M. from Ponging (figs. 5, 5a).

Two specimens to Indian Museum.

Spiraculum planum, n. sp.

(Pl. xxxix, figs. 6, 6a, 6b).

Locality: Upper Rotung, Abor Hills; No. 5992, Upper Rotung; No. 5992a, Yembung (*Kemp*).

Shell similar to *S. kempi*. Sculpture, rather coarser spiral ribbings. Colour bleached. Spire very low, the apex scarcely showing above the last whorl. Suture deeper. Sutural tube only 6.5 from the peristome, it is 4 mm. long and sharply recurved backward. Whorls 5. Aperture circular. Peristome double, thickened, outer lip expanding into a somewhat lengthened open wing, ascending on the whorl next it, not descending as in previous species.

Size: major diam. 30.0; alt. axis 6.0 mm.

A single small variety, bleached, only 28 mm. in major diameter, was sent to me from the Miri Hills. No. 3596 B.M.

Type No. 5992 *Ind. Mus.*

Spiraculum nevilli, G.-A. var.

Locality: Luyor, Abor Hills, 21-vii-13 (*Oakes*).

The wing or spout is not so long in typical *nevilli* from the Dafla Hills, and the last whorl near the aperture descends much more than in this Abor shell, otherwise they are very close in form. The Abor shells are not so very much mottled, but have a distinct band, and they are much smaller.

Size: major diam. 23.25; alt. axis 4.8 mm.

Type No. 3531 *Brit. Mus.*

Spiraculum nevilli, G.-A. var. (large).

Locality: Abor Hills, 3 young specimens and one fully grown put up alive, 4-i-13.

Shell very openly umbilicated, discoid. Sculpture, close spirallation, accentuated at the middle half of the whorl looking at it from above. Colour dark madder brown, mottled or rather streaked closely with ochre bands which, as they approach the apex, are closely zig-zagged, beneath plain. A distinct black band on the periphery. Spire very flat. Suture impressed. Whorls 5, regularly increasing. Aperture circular, oblique. Peristome double, thickened, much reflected, expanding forward near suture into a spout-like shape, which continues as a raised, pronounced

narrow ridge on the reflected whorl, the epidermis being peculiarly shining. A little further development would constitute this a tube, such is its appearance. Operculum multispiral, about 10 whorls, the edges slightly raised and furred on outer margin.

Size: major diam. 21.5; alt. axis 5.0 mm. (Type immature, 1st received). Major diam. 22.5; alt. axis 9.5 mm. (full-grown example).

Type No. 3089 *Brit. Mus.*

***Pterocyclos aborensis*, n. sp.**

(Pl. xxxix, figs. 1, 1a).

Locality: Abor Hills, No. 3104 B.M. Type; 3046 B.M. Ponging; 3050 B.M. Rami Lambang, 4-i-13 (*Oakes*).

Shell subdepressedly turbinate, very openly umbilicated. Sculpture, epidermal lines of growth strong. Well raised distant spiral lirae, both on upper and lower side. The one next the suture the most conspicuous, with two less pronounced intervening, about 14 altogether. Colour a rich umber brown. Spire subconoid, apex small. Suture deep. Whorls 5, regularly increasing, angulately rounded on periphery. Aperture circular. Peristome double, not thickened, slightly reflected, inner lip continuous, the outer expanded forward at inner angle into a half closed spout-shaped wing. Columellar margin sub-vertically curved. Operculum not seen.

Size: major diam. 26.0; alt. axis 10.0 mm.

Type No. 3104 *Brit. Mus.*

***Pterocyclos miri*ensis, n. sp.**

(Pl xxxix, figs. 2, 2a, 2b, 2c).

Locality: Miri Hills. Four specimens obtained.

Shell depressedly discoid, very widely umbilicated. Sculpture very strong, regular spiral lirae, above and below. Colour rich burnt sienna brown. Spire very flatly conic. Suture well impressed. Whorls 5, subangularly rounded on the periphery. Aperture circular, sub-vertical, just shows above the last whorl. Peristome double, not thickened, slightly reflected, inner lip thin, continuous, the outer expanded into a wing, openly spout shaped. Columellar margin well rounded.

Size: major diam. 30.0; alt. axis 8.0 mm.

Type No. 3580 *Brit. Mus.*

Three specimens to Indian Museum.

***Pterocyclos spiramentum*, n. sp.**

(Pl. xl, figs. 4, 4a, 4b).

Locality: Abor Hills, only one specimen obtained but that is in perfect condition (*Oakes*).

Shell (fig. 4a) openly umbilicated, depressedly orbiculate, somewhat globose. Sculpture, only fine epidermal lines of growth. Colour dark sienna brown, crossed by dark bands, running from the suture to the narrow black periphery band. Spire slightly raised, very depressedly conoid. Suture deep. Whorls 4, the last rapidly increasing. Aperture circular, sub-vertical. Peristome slightly reflected, not much thickened, the outer lip is expanded near the suture, with sides turned in forming a spout-like projection. Close behind this and adjacent to the suture is an apparent tube (fig. 4), but it is rather of gutter form, semi-circular in section, and is given off from a cleft on the columellar side just within the aperture (fig. 4b), which is not an orifice—if it were so the gutter would be a true tube and the shell a *Spiraculum*. It illustrates how the sutural tube in that genus has originated. This species is on the borderland of the two genera *Pterocyclos* and *Spiraculum*. It must be put in *Pterocyclos*, because the tube is close to the aperture, almost a part of the peristome. In *Spiraculum* the tube is remote from the aperture. Operculum concave



TEXT-FIG. 1.—*Pterocyclos brahmakundensis*, n. sp.

in centre, multispiral, suture not raised.

Size: major diam. 15.0; alt. axis 4.75 mm.

Type No. 3082 Brit. Mus.

***Pterocyclos brahmakundensis*, n. sp.**

Locality : Brahmakund, Eastern Assam (*M. T. Ogle*). Three specimens were found.

Shell very depressedly discoid, smooth throughout, very widely umbilicated; sculpture fine and close, transverse lines of growth on the epidermis; colour sienna brown, more ochraceous below, indistinctly mottled, passing into zig-zag markings on the apical whorls, a narrow black peripheral band; spire very flat, scarcely raised above the last whorl; suture well impressed; whorls 5, rounded on periphery, narrowing rapidly, rather closely wound, the last descending; aperture circular, oblique; peristome double, fairly strong, reflected, inner lip continuous, shallowly sinuous on the upper inner margin next the wing, this is spout shaped,

directed upwards; columellar margin rounded; operculum not seen.

Size: maj. diam. 2.1; alt. axis 1.4 mm.

Type No. 713 B.M.

I have had this species for many years; it was given me by Mr. Ogle, collected when he was surveying in Eastern Assam. The opportunity now occurs of bringing it to notice, with the fine series from the contiguous Abor Country. It is interesting to compare its form with *Pterocyclos miriensis*, and to note the differences, particularly in the sculpture of the latter.

Pterocyclos magnus, G.-A. var.

A single specimen, with peristome not quite perfect and surface in poor condition, was sent me by officers of the Survey with the Miri Mission. It comes nearest to the above Daffa Hill shell in general form, the markings differ considerably. Major diameter 24.75. It should be looked for again. No. 3599 B.M.

? *Spiraculum luyorensis*, n. sp.

(Pl. xl, figs. 5, 5a, 5b).

Locality: Luyor, Abor Hills (Oakes).

Shell openly umbilicated, orbiculate, very depressed. Sculpture, a smooth epidermis, lines of growth very fine and close. Colour a very rich dark madder brown, broad dark bands close set, cross the third whorl transversely. There is a narrow peripheral band. Spire very low, apex just showing above the plane of the last whorl. Suture impressed, the sutural tube close behind the aperture, 3 mm. distant, 3 mm. in length and curving backwards. Whorls 4, the last expanding rapidly. Aperture circular, sub-vertical. Peristome double, not very thickened, slightly reflected, at the suture, the outer lip is extended forward into a long spout resting on the periphery.

Size: major diam. 18.75; alt. axis 4.8 mm.

Type No. 3530 Brit. Mus.

This is close to *Pterocyclos spiramentum*, but is distinct in its much flatter apex, and far wider umbilicus. The peristome presents a stage further towards, and has reached the development of *Spiraculum*, rendering it a more than usually interesting species.

Spiraculum putaoensis, n. sp.

(Pl. xl, figs. 3, 3a, 3b).

Locality: Putao, Upper Burma, May 1914, 3 specimens (Capt. C. E. Morris).

Shell widely umbilicated, orbicularly depressed. Sculpture, fine regular transverse striae of growth. Colour, bleached, and epidermis gone; zig-zag streakings at regular intervals cross the

whorls from the suture outwards. Spire scarcely raised above the last whorl. Suture impressed, the tube $4\frac{1}{2}$ mm., behind the aperture, a mere orifice, but in the perfect shell there may be a tube. Whorls 4, increasing regularly. Aperture circular, oblique. Peristome double, inner and outer lips continuous, the inner with a slight notch near sutural margin, the outer expanded into a wing or spout.

Size: major diam. 14.0; alt. axis 4.0 mm.

The habitat of this species at the head of the Irrawady valley (not a very far distant one from the Tsanspu) is interesting and I have introduced it here because in the sutural tube it approaches a species found in the Abor Hills, which I next describe as *Spiraculum minimum*, and is much smaller. It also recalls *Spiraculum andersoni*, Blf., from Bhamao, but this is more openly umbilicated, the wing similar. My best thanks are due to Capt. C. E. Morris.

Spiraculum minimum, n. sp.

(Pl. xl, figs. 2, 2a, 2b, 2c).

Locality: Jeku, Abor Hills, two specimens (*J. Coggin Brown*).

Shell orbiculate, depressed, widely umbilicated. Sculpture, fine transverse lines of growth on the epidermis. Colour dull ochraceous, with a green tinge, 3rd and last whorls crossed by irregular broadish brown bands, indication of a band just below the periphery. Spire depressed, but apex well above last whorl. Suture impressed, the tube short, close behind the aperture, only 2 mm. distant. Whorls 4, regularly increasing. Aperture circular, with very slight angulation at sutural margin. Peristome double, both inner and outer lips continuous, moderately thickened and slightly reflected.

Size: major diam. 9.2; alt. axis 3.25 mm.

Type No. 6142-43 *Ind. Mus.*

Lt. G. F. T. Oakes, R.E. has sent me seven examples of this species from Sibbum, far finer in size; four are bleached. The largest measures 10 mm. in major diameter, No. 3147 B.M. Three are perfect (No. 3145 B.M.), with strong epidermis. Colour sienna brown in tint with ochraceous mottling, with an indistinct peripheral band. Major diam. 11.5 mm.

This is a close ally of *Spiraculum kempi*, but the closely mottled zig-zag pattern and black peripheral band is not seen in that species; in this respect it is similar to *Spiraculum nevilli* of the Dafla Hills; it is smaller and rather flatter than that shell.

It is hardly possible to find better examples showing the development of the sutural tube in *Spiraculum* than in the species figured on Plate xl. Although it is not from the Tsanspu Valley but from the source of the Irrawady, *Spiraculum putaoensis* has been introduced in order to show how close is the relationship and how beautiful evolutionary stages have been. In having a tube on the suture behind the peristome and a simple peristome, both

belong to the genus *Spiraculum*. In figures 2c and 3b, within the aperture may be seen the little orifice having a connection with the branchial sac. In *Spiraculum minimum* this is very close to the aperture, in *Spiraculum putaoensis* it is more remote. In the first the inner and outer lips of the peristome are united and thickened at the upper inner margin next the suture, while in the second there is further development; a clear separation of the lips has taken place, the inner has a slight nick on the line of the suture, shown by a sort of cicatrice up to the branchial orifice, and the outer lip is expanded forward into a short scoop-like process corresponding to the wing, as it has been called, of *Pterocyclos*. The next species (fig. 4) might be placed in this genus and is a true link with it. The tube is so far forward, it still forms a part of the peristome, a complete isolated orifice has not yet been formed—it is a slit; the process of its further development would be the growing more forward of the whorl itself. In fig. 5, *Spiraculum luyorensis*, we find this stage reached, and in fig. 5b the internal orifice has been left behind, and externally a perfect tube is seen on the suture (fig. 5a) behind the aperture and completely separate from it. While this evolution has been in progress, another change has taken place: the scoop in fig. 4 has grown forward considerably into the elongated gutter of fig. 5, with its edges growing inwards and nearly touching, corresponding in life, in all probability, with a sharp fold of the mantle edge, which with further growth might become more and more tube-like.

***Cyclophorus oakesi*, n. sp.**

(Pl. xl, figs. 1, 1a).

Locality: Tsanspu Valley, Abor Hills, 2 specimens (*Oakes*).

Shell globosely conoid, umbilicated, not widely. Sculpture, a strong epidermis, fine lines of growth. Colour strong sienna brown, mottled, broadish splashes of black. No peripheral band. Spire somewhat depressed, apex broad and blunt. Suture impressed. Whorls $4\frac{1}{4}$, well rounded. Aperture circular, suboblique. Peristome simple, not thickened, very slightly expanded, in the best specimen it is not fully formed. Operculum horny multi-spiral, smooth in front and concave.

Size: major diam. 9.4; alt. axis 4.8 mm.

Type No. 3083 *Brit. Mus.*

The subgeneric position of this species is very doubtful; the animal has not been seen.

Genus *Alycaeus*.

Lieutenant, now Captain Oakes, R.E. was most fortunate to secure some very interesting species of this genus. They all proved to be new, one representing a new subgenus *Raptomphalus*.

When these species were received, I was compiling a Monograph of the Indian Alycaei for "Land and Freshwater Mollusca

of India " Part XII, published in December 1914, thus the Abor species will be found described and figured in that work as follows :—

ABOR HILLS AND TSANSPU VALLEY.

- aborensis*, n. sp., p. 364, pl. CXLIX, fig. 9.
chanjukensis, n. sp., p. 364, pl. CLVII, figs. 5, 5a.
 (Cycloryx) sp. near *costatus*, p. 369.
duoculmen, n. sp., p. 365, pl. CLVII, figs. 2, 2a.
 (Dioryx) *globulosus*, n. sp., p. 368, pl. CLVII, figs. 1, 1a.
luyorensis, n. sp., p. 365, pl. CLVII, figs. 6, 6a.
 (Raptomphalus) *magnificus*, n. sp., p. 366, pl. CLVI, figs. 1, 1a, 1b.
oakesi, n. sp., p. 366, pl. CLVII, figs. 4, 4a.
panggihana, n. sp., p. 367, pl. CLVI, figs. 3, 3a.
sibbumensis, n. sp., p. 367, pl. CLVI, figs. 4, 4a.
 (Dioryx) *urceolus*, n. sp., p. 369, pl. CLIII, figs. 9, 9a.
vesica, n. sp., p. 368, pl. CXLIX, fig. 10.
yamneyensis, n. sp., p. 368, pl. CLVI, fig. 2.

I also give a list of Alycaei known to me, from Eastern Assam, which includes Sadiya and the Lohit River to the eastward. This may be useful to those interested in the Molluscan fauna of this part of India.

EASTERN ASSAM.

- brahma*, G.-A., p. 363, pl. XLVIII, fig. 3.
brahma, G.-A., var., p. 363.
distinctus, G.-A., p. 363, pl. CXXXVII, figs. 2, 2a, 2b.
 (Diaryx) *globosus*, n. sp., p. 363, pl. CLIII, fig. 8.
 (Cycloryx) *granum*, G.-A., p. 364, pl. LXIII, fig. 6.
graphicus, var. *dihingensis*, n. s. s., p. 363, pl. CXLVI, figs. 6, 6a.
lohitensis, n. sp., p. 362, pl. CXXXVII, figs. 1, 1a.
oglei, n. sp., p. 362, pl. CXLVIII, fig. 2.

EXPLANATION OF PLATE XXXVIII.

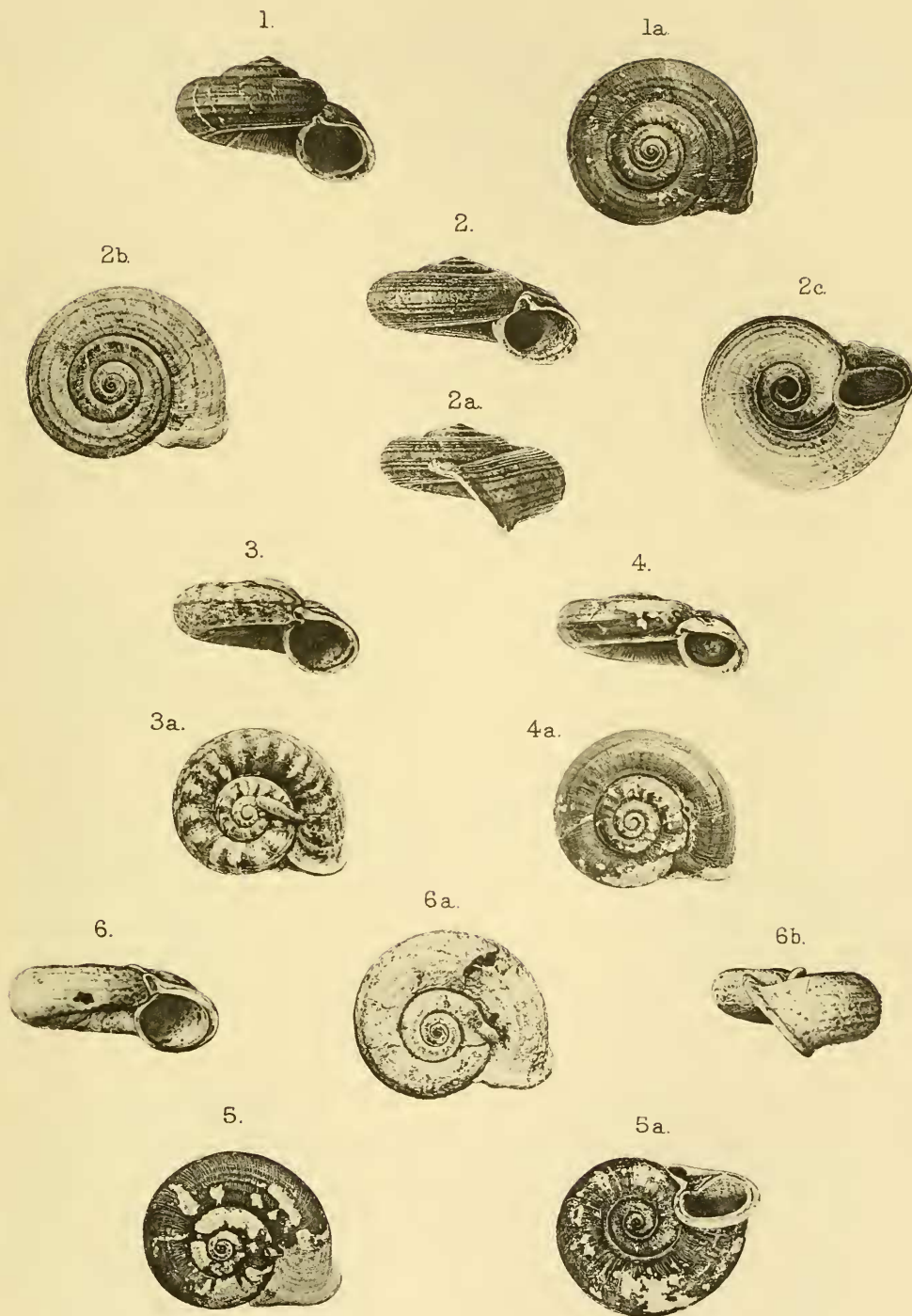
FIGS.	1, 1a.—	<i>Cyclophorus aborensis</i> , n. sp.	Renging.
„	1b, 1c.—	„	„ Type, Rotung (<i>Kemp</i>).
„	2, 2a, 2b, 2c.—	„	<i>bapuensis</i> , n. sp. Type.
„	3, 3a, 3b, 3c.—	„	<i>sidiensis</i> , n. sp. Type.
„	4a, 4b.—	„	<i>koboensis</i> , n. sp. 1st specimen, Rotung (<i>Oakes</i>).
„	4c, 4d.—	„	2nd specimen.
„	4.—	„	„ Type, Kobo (<i>Kemp</i>).

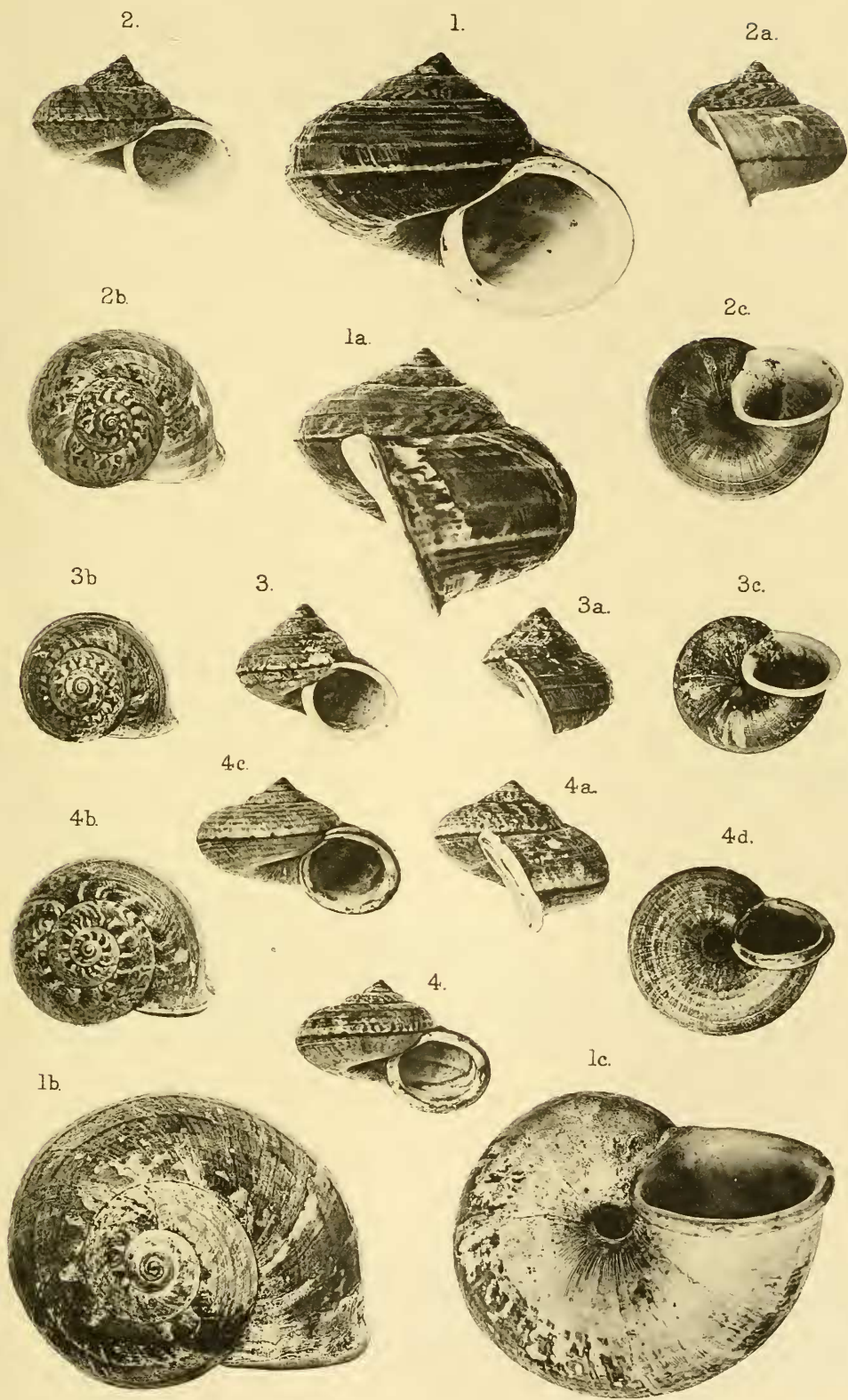
EXPLANATION OF PLATE XXXIX.

FIGS. 1, 1a.—*Pterocyclos aborensis*, n. sp. Type.
 ,, 2, 2a 2b, 2c.— ,, *miriensis*, n. sp. Type.
 ,, 3, 3a.—*Spiraculum oakesi*, n. sp. Type.
 ,, 4, 4a.— ,, *kempi*, n. sp. Type.
 ,, 5, 5a.— ,, ,, large. Ponging.
 ,, 6, 6a, 6b.— ,, *planum*, n. sp. Type, Upper
 Rotung.

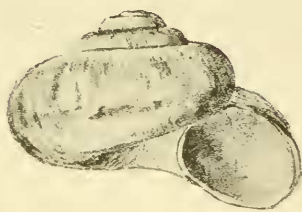
EXPLANATION OF PLATE XL.

- FIGS. 1, 1a.—*Cyclophorus oakesi*, n. sp. \times 4.5. Type.
,, 2, 2a, 2b, 2c.—*Spiraculum minimum*, n. sp. \times 3.4. Type.
,, 3, 3a, 3b.— ,, *putaoensis*, n. sp. \times 3.4. Type.
,, 4, 4a, 4b.—*Pterocyclos spiramentum*, n. sp. \times 3.4. Type.
,, 5, 5a, 5b.—? *Spiraculum luyorensis*, n. sp. \times 3.4. Type.

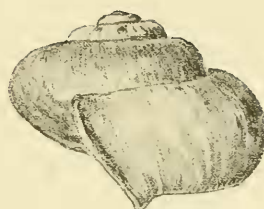




1



1a



2



2



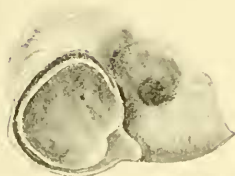
2a



2b



3b



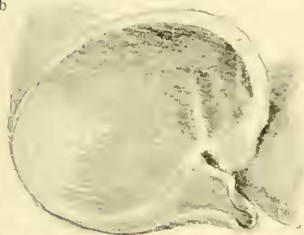
3



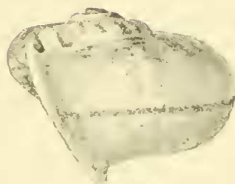
3a



4b



4a



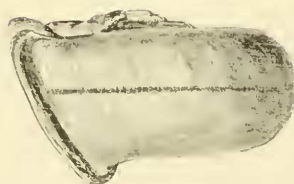
4



5b



5



5a

